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Title of the Invention.

On Screen Vocabulary for Ideographic Word Organizing and Searching

### Brief Description of the Drawings

Fig.1, the flow chart of locating and entering a word.

Fig.2, the home page.

Fig.3, a typical display of a word page window.

Fig.4, the complete structure of the Chinese vocabulary storage system.

Fig.5, the flow chart of word relocation.

### Detailed Description of the Invention

The present invention splits all available Chinese words into two divisions, the traditional division and the simplified division. The two divisions are structurally identical, virtually three dimensional, parallelly symmetrically collocated, consisting three vocabulary tiers.

Each tier has 26 pages, each of which is sequentially displayed on a computer screen as a floating window.

Each page is divided into a plurality of cells. Each cell is assigned with an individual

address occupied by one word. Each word occupies at least one address within one division.

The present invention assigns all available Chinese words into 26 dominant meaning groups, each of which consists 3 pages ranking from most frequently used, less frequently used to least frequently used locating within the 3 vocabulary tiers, correspondingly.

For the reason that the traditional division and the simplified division are structurally symmetrical, each cell with its occupant in a division is correspondingly the equivalent of the same cell, same address, same meaning occupant in the opposite division.

Fig.1, illustrates a word locating and selecting flow chart, describing the relationship between the tiers, the relationship between the pages and the relationship between a tier with the subordinate pages thereof; describing a typical process of searching, locating selecting a word, and inputting words into the word processing program. As mentioned above, the two divisions are identical in their structure. One flow chart explains the relationship and the process for both divisions.

Step 100 marks the start, introduces the home page 120. Commands are sent from the interface devices, the keyboard and the pointing device(mouse) 110.

The description of steps 120, the home page, is given in Fig.2.

Step 127, 'Page index' lists all 26 groups with their assigned radicals and strokes, as well as meanings of the vocabulary for quick reference.

Step 128, 'Words store' offers the vocabulary storage entrance to this program.

Step 129, 'Words relocate' allows words to be relocated to tiers, to pages, according to the typist's preference or the usage priority.

Unless the user selects other tiers, the program defaults to the primary tier 122, where contains the most frequently used words. Pages are indexed with alphabet letters of the

keyboard, as one of the efforts of this invention to use existing equipment. For the simplified form of Chinese words, using the lower case of the alphabet, from a to z, for the traditional form of Chinese words, using the upper capital case of alphabet, from A to Z. Each division has 3 tiers. Each tier has 26 pages.

On the primary(default) and secondary tiers, each page has 100 words, on the supplemental tier, each page contains more than 100 words. With 26 pages, the primary tier in a division contains 2000 or more most frequently used words(for the reason that some important words will be multiplely listed in different pages), which is adequate for a normal daily written communication. The secondary tier contains another 2600 words. The supplemental tier contains the least frequently used words, wherein each of its 26 pages contains up to 200 words. Altogether, the three tiers within a division contains more than 10,000 words. That includes all words in a modern Chinese dictionary.

Pages, in a same dominant meaning group, indexed by same alphabet letter, store words from most frequently used to least frequently used, ranked from primary, secondary to supplemental within the three tiers, collects words sharing one dominant meaning.

Steps 131 represents all 26 pages of the most frequently used words. To select between the pages, a typist taps the alphabet letter keys on the keyboard with one hand, to select the words, the typist uses the mouse with another hand. Every word in a page is assigned with an address. For 100 words on one page, a two digit number is enough, one number for the column and one number for the row, is easy to handle. A word is addressed by the page alphabet and the column and row numbers thereof. When this process is familiarized by the user, who may key in the addresses to copy the words to the word processor, no need to display the pages on the screen. If a voice device

is equipped, the user may call in the address for the word.

These privileged simplified addresses are for the words on the default tier(pages) only.

For the second tier, each address is pre-fixed with the number 2 before the alphabet of the page, followed by the column number and the row number. Same rule applied to the supplemental tier, but pre-fixed with the number 3. The user may key in these addresses to copy the associated words to the word processor, instead of displaying these tiers/pages on the screen. For example, a word in the primary tier, in a page led by letter "a", has its address "a47". A less frequently used word in the same word group, classified into the secondary tier, has its address "2a35". The small "a" is for the simplified form, the equivalent traditional form counterparts of these words will occupy the addresses of "A47" and "2A35". A word in the supplemental tier of the same word group has an address of "3a1209" or "3A1209".

Tiers are for ranking the usage priority, to arrange words from the most frequently used to the least frequently used. Switching between the tiers is done by using the up/down keys on the keyboard. Groups are for classifying the vocabularies, indexed from a to z, selecting by using the alphabet keys on the keyboard. Words under one dominant meaning, sharing similar radicals or strokes, are indexed by one alphabet letter as in a same group (more explanation given in Fig.3).

If a desired word is not in the primary page, "page down" to the same group on the second tier, or further "page down" to the same group on the supplemental tier.

The three tiers are virtually hierarchical. These 26 pages within a tier is virtually coplanar.

The step 131 is followed by step 132, if the desired word is located, as in the "Y" (yes) path, the word is copied to the word processor 140. Otherwise, as in the "N" (no) path,

the user switch the page to its second tier, as indicated by step 133. If the desired word is located here as in the step 134 (Y) path, it is copied to the word processor 140. If the word is not located in the second tier (N), switching into the supplemental tier 135. The step 136 is same as step 134, if the word is located. However, if the word is not found, this invention gives the user an opportunity to creat the desired word, in step 137, which is then stored in the page of the tier in step 135.

This completes the word locating and selecting process. After the desired word is copied to the word processor 140, the user may select the next word in the same page, may switch to another page to locate it. Step 141 indicates the choice of the user. If no idea of the index of the next word, return to the home page.

The default tier can be bypassed using keyboard or pointing device directly selecting the secondary or supplemental tiers.

Fig.2, illustrates the home page 200, wherein the traditional division 210 and the simplified division 220 are collocated, containing same number of tiers, as well as pages, vocabularies are identical in their meanings, correspondingly assigned to symmetrically same addresses in the opposite divisions. Each word is occupying its associated address in one division as the same word equivalent in the opposite division occupying the exact same address in the opposite division. To switch between the opposite divisions, a user taps the "Shift + Caps" keys This home page is the starting point to navigate on this program.

Due to a long period of isolation, people famillier with words of one division has difficulty to recognize words in the opposite form. Dictionaries usually list all the available words indiscriminatory, commingle words of these two forms together. Until now, all available Chinese word processing programs mix Chinese words in one package. A typist usually has

difficulty to identify words of one form from the other. Furthermore, keeping all words in an unified form is a good manner, especially important for communicating formally in written language. This present invention offers the separation of these two forms. But finding the equivalent word in the opposite form is easy as tapping two keys.

Within the areas of 210 or 220, choices of 'default', 'second', 'supplement' are listed for direct access to these three tiers. Without making the selections, the program automatically is in the default setting for the primary tier of vocabulary. Area 230 is a matrix of 27 boxes for the index of the word pages, offering direct access to the word pages by pointing and clicking on them, or tapping the alphabet on the keyboard. Again, the default setting is for the primary words. The 26 boxes are indexed by the English alphabet letters on the keyboard, leaving the last one blank for additional expansion.

To index the Chinese words for listing them intelligently, for searching easily, is always a very challenging task for centuries. Until the present time, there is no permanent best solution for every one to satisfy. A principle of this invention is to utilize the existing equipment of a common personal computer, to use the 26 English letters for the indexing seems to be convenient. To classify the thousands of Chinese words into 26 groups, the best way seems to be gathering the words by their principal meanings. The present invention classifies the meanings of the words into 20 groups led by letters from 'a to t', use 'u, v and w' to index verbs and adjectives, uses 'x, y, z' for words difficult to classify and for special words or very basic words.

Using the elements of the universe, such as sun, moon, sky; earth, rock; domestic mammal, bird, fish, water, boat; human, male, female, metal, knife, tool, measurement system, wood, bamboo, etc., as leads to arrange Chinese words into 20 groups. Each group has a dominant

meaning of basic element or elements. 'Tool' and 'measurement system' are arranged in one group, same rule for 'water' and 'boat'. A person needs only a basic knowledge of these elements to directly look into the related pages to locate the desired Chinese words. When writing and typing in progress, meanings of the words in sequence following the thinking of the writers and the typists. One will find this method smooth and natural to use.

Words under one dominant meaning are gathered in one group, indexed by one letter, divided to three tiers. Every page on primary tier has 100 most frequently used words, in most occasions, these words on the primary tier are sufficient for regular communication needs. Each page on the secondary tier has 100 less important words. The supplemental tier contains all words that are not listed in the other two higher priority tiers. Words can be relocated from other two tiers to this tier, or move out of. All modern Chinese word processor, such as the Microsoft Windows 98, the Office / Word 2000, have the abilities to create new words, and further offers a function of associated compound words.

The punctuation marks are arranged as well.

This invention is intended to be a feature, an attachment to a Chinese word processor, such as Microsoft Word 2000, wherein Chinese words are copied and processed.

Area 240 'Page index' is a key leading to a detailed listing of all the pages. A new user will find it handy to look up the indexes with all the "dominant meanings" they carry. It is shown in Fig.1 as step 127.

Area 250 'Word relocate' pops up a window to exchange words between tiers, groups, as well as in pages. It is shown in Fig. 1 as step 129. Area 260 'Word store' pops another window for words entering into the storage. There are more detail given in Fig.5.

Fig.3 is a typical word page display 310, created by this invention, floating on a typical

Microsoft Word program 300. Showing here is a page in the default tier of 100 primary words under the dominant meaning of 'domestic mammals'.

Bar 311 is for a cursor to be landed and drag the inset window 310 to any location to yield the main window for word processing. This inset window 310 is floating automatically as the typing in progress. Four keys of 312 are for the purpose of the following: (h) key for returning to home page; (+) key for enlargement of the inset window 310; (-) key for reduction the size of it; (x) key for cancelling it.

Area 320 is the matrix of the vocabularies. The top row 321 is the ten Chinese numerals from 1 to 0, marking the columns; the left column 322 is the ten Arabic numerals from 1 to 0, marking the rows. Both of these numerals are used for addressing every single word within the page. Addresses can be keyed in or called in vocally to copy words into the word processing program without using pointing device.

The dominant meaning of this page is domestic mammals, includes: sheep, dog, pig, horse, cow, cat, rat, elephant and camel. Words listed here are either direct relatives of these mammals, such as "fox" and "wolf" are listed with "dog"; or words derived from these mammals, such as "drive" is listed with "horse", "plough" is with "cow".

Interestingly, "monkey" is here for the reason that it has the "dog" radical. The user is able to relocate this "monkey" word to a page with other kinds of creatures willingly.

In another page of "water, fish and boat", one will find that "whale" is listed for the same reason of having the "fish" radical, the ancient Chinese created this word long before the modern marin-science discovered that whale was not a fish. However, whale lives with fish in water.

The words on the second row from top in this page, ten of them, are all pronounced



"yang". There are more words with this same pronunciation. But none of them shares similar meaning with each others. The reason for them to be grouped together here is that they share the radical of 'sheep'. An example of how complicated this language is.

The word occupies the address 11 (the one at the top left corner) is "oxygen". Listed here for the reason of having same pronunciation of "sheep", having the radical of "sheep". For the reason of having a co-radical of "air", it will be listed again in the page of "air, weather, atmosphere". For the reason of being a frequently used word, it will be listed in another primary page as well. A language is a major part of a culture. It may not be logical, nor rational. A user of this program, knowing Chinese language, will find no problem to understand it. Common words are multiply listed in more than one groups as a principle of this invention.. But, one word usually appears only once in one group.

The alphabet at the corner, 323, is the page index. Clicking at this letter to switch to the other two pages in same word group, to find those less frequently used words, or to return to the default page. As already mentioned, this letter is a part of the addresses of a word. The alphabet letter keys on the keyboard are no longer for spelling the English words, instead, given a new use of indexing word pages and for addressing words thereof.

An important feature is added to this program letting the user to relocate words on any pages. Detail is given in Fig.5.

Fig.4, illustrates the complete structure of the vocabulary arrangement. Block 400 indicates the Chinese words split to two divisions: the traditional division 410 and the simplified division 460. Again, these two divisions are identical, from the entire structure to every individual cell setting. Each pair of the two equivalent words of these two forms is located in the corresponding addresses of the two divisions. This arrangement gives the

user a very easy way to find the corresponding word in the opposite form.

The block 470 is the default tier, it is automatically selected for locating primary words.

The block 471 shows 'a to z' pages. The block 480 and 481 are second tier and pages, contains same number of pages as the primary tier. The block 490 and 491 are supplemental tier and pages, contains same number of pages, but more words.

A bridge (passage) 478 crosses from block 471 to block 481 indicates that words may be relocated between them. A bridge 489 crosses from block 481 to block 491 indicates that

words may be relocated between them. A bridge 479 crosses from block 471 to block 491

indicates that words may be relocated between them.

The simplified division components are indexed with lower case of letters, a to z.

For the reason of being identical in their structure, the traditional division has same number of blocks and bridges as the simplified division. The default tier and pages are 420 and 421. The second tier and pages are 430 and 431. The supplemental tier and pages are 440 and 441. The bridges cross them are 423, 434, 424, on which words travel across.

For cross reference of the vocabulary of the two word form divisions, bridges are arranged. For the reason of corresponding location of the equivalent words, bridges cross the corresponding addresses in the corresponding pages only. That is a bridge cross between two same alphabet letter indexed pages only (one page indexed with the upper case letter, the other page with the lower case letter) in a same level of tier. Bridge 427 crosses the pages 421 and 471, for the tiers 420 and 470; bridge 438 crosses the pages 431 and 481 for the tiers 430 and 480; bridge 449 crosses the pages 441 and 491 for the tiers 440 and 490.

For the reason of being correspondingly equivalent of the cells and its occupants(words)

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number(s). Each supplemental tier word page may have more than 100 words, needs two digit column number and two digit row number. Each address blank 531 has six digit space to be fully adequate for accommodation of a full length address.

The user enters the associating address of the word into the blank 531, hit 'Enter' key of computer keyboard, the word will be delivered to the corresponding small window 532 under the blank 531 for identification. Choices are provided on step 540, if the word is incorrect, return to step 530 to repeat the process. If the word is the desired for relocation, as delivered to the small window 531 of the new address window 550, the user